

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1. (Previously presented): A polishing slurry comprising:

a metal-oxidizing agent; a metal anticorrosive agent; an oxidized metal dissolving agent;
and water,

wherein the oxidized metal dissolving agent is at least one kind selected from the group consisting of an acid in which the negative value of the logarithm of the dissociation constant K_a (pK_a) of a first dissociable acid group is 3.5 or more, an ammonium salt of the acid and an organic acid ester of the acid, the pH of the polishing slurry is within the range of 3 to 4, and the concentration of the metal-oxidizing agent is within the range of 0.01 to 3 percent by weight,

wherein the polishing slurry is capable of polishing a barrier layer.

2. (Original): The polishing slurry of claim 1, wherein the concentration of the oxidizing agent is within the range of 0.01 to 1.5 percent by weight.

3. (Previously presented): The polishing slurry of claim 1, wherein the oxidized metal dissolving agent is an organic acid.

4. (Original): The polishing slurry of claim 3, wherein the organic acid is at least one kind selected from the group consisting of lactic acid, succinic acid, adipic acid, glutaric acid, benzoic acid, quinaldic acid, butyric acid and valeric acid.

5. (Previously presented): The polishing slurry of claim 1, wherein the metal anticorrosive agent is at least one kind selected from the group consisting of a compound having a triazole skeleton other than benzotriazole, a compound having a pyrimidine skeleton, a compound having an

imidazole skeleton, a compound having a guanidine skeleton, a compound having a thiazole skeleton, a compound having a pyrazole skeleton and benzotriazole.

6. (Previously presented): The polishing slurry of claim 1, wherein the metal-oxidizing agent is at least one kind selected from the group consisting of hydrogen peroxide, ammonium persulfate, ferric nitrate, nitric acid, potassium periodate, hypochlorous acid and ozone water.

7. (Previously presented): The polishing slurry of claim 1, wherein the polishing slurry contains polishing particles.

8. (Original): The polishing slurry of claim 7, wherein the polishing particles are at least one kind selected from the group consisting of silica, alumina, ceria, titania, zirconia and germania.

9. (Previously presented): The polishing slurry of claim 7, wherein the polishing particles are colloidal silica or colloidal alumina having an average particle diameter of 100 nm or less.

10. (Previously presented): The polishing slurry of claim 1, wherein the polishing slurry contains a water-soluble polymer compound

11. (Original): The polishing slurry of claim 10, wherein the water-soluble polymer compound is at least one kind selected from the group consisting of polyacrylic acid and the salt thereof, polymethacrylic acid and the salt thereof, polyacrylamide, polyvinyl alcohol, and polyvinylpyrrolidone.

12. (Withdrawn): A polishing method for polishing a material comprising:

a substrate,

an interlaminar insulating film on said substrate, wherein a surface of said interlaminar insulation film comprises dented portions and projected portions,

a barrier conductor layer coated along said surface of said interlaminar insulating film, wherein said barrier conductor layer comprises dented portions and projected portions corresponding to the dented portions and projected portions of said interlaminar insulation film,

a conductive substance layer coated on said barrier conductor layer, wherein said conductive substance layer fills the dented portions of said barrier conductor layer and covers the projected portions of said barrier conductor layer,

said method comprising:

a first polishing step of polishing said conductive substance layer to expose projected portions of said barrier conductor layer; and

a second polishing step of chemically polishing and mechanically polishing at least the exposed projected portions of said barrier conductor layer and the conductive substance layer while supplying the polishing slurry of claim 1 to expose the interlaminar insulating film at locations corresponding to the projected portions of said interlaminar insulating film, with conductive substance layer at the dented portions of said barrier conductor layer remaining.

13. (Original): The polishing method of claim 12, wherein the barrier conductor layer prevents the conductive substance from diffusing to the interlaminar insulating film, and the conductive substance is at least one of copper and a copper alloy.

14. (Withdrawn): The polishing method of claim 12, wherein the barrier conductor layer is a single layer made of one kind or a lamination layer made of two kinds or more selected from the group consisting of tantalum, tantalum nitride, a tantalum alloy, titanium, titanium nitride, a titanium alloy, tungsten, tungsten nitride and a tungsten alloy.

15. (Withdrawn): The polishing method of claim 12, wherein the concentration of the oxidizing agent is within the range of 0.01 to 1.5 percent by weight.

16. (Withdrawn): The polishing method of claim 12, wherein the oxidized metal dissolving agent is an organic acid.

17. (Withdrawn) The polishing method of claim 12, wherein said dented portions and projected portions are formed in a specified pattern.

18. (Withdrawn) The polishing method of claim 17, wherein said dented portions are formed on the surface of the interlaminar insulating film by forming a resist layer and etching.

19. (New): A polishing slurry comprising:

a metal-oxidizing agent; a metal anticorrosive agent; an oxidized metal dissolving agent; and water,

wherein the oxidized metal dissolving agent is at least one kind selected from the group consisting of an acid in which the negative value of the logarithm of the dissociation constant K_a (pK_a) of a first dissociable acid group is 3.5 or more, an ammonium salt of the acid and an organic acid ester of the acid, the pH of the polishing slurry is within the range of 3 to 4, and the concentration of the metal-oxidizing agent is within the range of 0.01 to 3 percent by weight,

wherein the polishing slurry is capable of polishing a barrier layer, and

wherein the barrier layer is selected from the group consisting of tantalum compounds and titanium compounds.

20. (New): A polishing slurry comprising:

a metal-oxidizing agent; a metal anticorrosive agent; an oxidized metal dissolving agent;
and water,

wherein the oxidized metal dissolving agent is at least one kind selected from the group consisting of an acid in which the negative value of the logarithm of the dissociation constant K_a (pK_a) of a first dissociable acid group is 3.5 or more, an ammonium salt of the acid and an organic acid ester of the acid, the pH of the polishing slurry is within the range of 3 to 4, and the concentration of the metal-oxidizing agent is within the range of 0.01 to 3 percent by weight,

wherein the polishing slurry is capable of polishing a barrier layer, and

wherein pH of the plashing slurry is within the range of 3 to 3.75.

21. (New): A polishing slurry comprising:

a metal-oxidizing agent; a metal anticorrosive agent; an oxidized metal dissolving agent;
and water,

wherein the oxidized metal dissolving agent is at least one kind selected from the group consisting of an acid in which the negative value of the logarithm of the dissociation constant K_a (pK_a) of a first dissociable acid group is 3.5 or more, an ammonium salt of the acid and an organic acid ester of the acid, the pH of the polishing slurry is within the range of 3 to 4, and the concentration of the metal-oxidizing agent is within the range of 0.01 to 3 percent by weight,

wherein the polishing slurry is capable of polishing a barrier layer, and

wherein the polishing slurry contains polishing particles having an average particle diameter of 100 nm or less.

22 (New). The polishing slurry of claim 19, wherein the barrier layer is selected from the group consisting of tantalum, tantalum nitrides, tantalum alloys, titanium, titanium nitrides and titanium alloys.